

## Learning Activity: Problem Solving Through Self Questioning Bookmark

**Learning Behaviours:** *Getting started, Getting unstuck, Knowing when you know?*

**Teacher:** BKD **DATE:** 13 /9/05

**Class:** 9D Maths

Students are working through variety of word problems using trig to solve them(over about three weeks). Students were given the BOOKMARK (printed on cardboard strips) to focus them on the learning behaviours (we had listed these in their workbooks earlier but they weren't using them). The bookmark of self questions needs to be used by students before they ask each other or myself. In answering questions, kids or me, we simply direct the student back to the self questions without giving answers as such. In nearly all cases they then find their way forward, the only time it doesn't really work is when you need to show them correct setting out of answers.

### 9D Self Q's Bookmark

#### Getting started:

What is the question asking me to find?  
Can I draw a problem triangle?  
Which sides are involved (compared to the angle)?  
Which trig ratio applies?  
(Soh Cah Toa)

#### Getting unstuck:

Can I find another one similar in my books?  
What is different - can I make it nice?  
Do I need to find something else first?  
What do I know about it?

#### Knowing?:

Can I explain one to someone else?  
Can I do ones that look different?

#### PLUS:

Have I set the answer out correctly?  
Is my answer correct (check book)?

## Discussion Tool: Journal Writing

Students were asked to complete two stems in their journals

- Self questions make me .....
- Not giving the answers is important because .....

## Student Comments

Students started to do as I had asked, in not just telling each other the answer but there is a long way to go. Interestingly one student was annoyed with himself when he had realised he had just told his partner the answer instead of referring him to the self questions. A particularly weak student was able to do the trig work using this approach but still had trouble with setting out her answers (and just had to be shown this). The less independent learners find the approach quite annoying - "just show the answer..."

### **Journal response summary**

#### **Self questions make me .....**

Learn by myself, know how much we know, shows you what to do next, they are annoying & frustrating, learn better, think for yourself, helps me understand, find my own answers, work harder, get unstuck, think more, understand the problem.

#### **Not giving the answers is important because .....**

Helps people figure out things for themselves, they will notice that they can do it, it helps others to learn & understand, helps them work out the problem, they need to understand, learn & figure it out for ourselves, you think for your self.

## Teacher Journal

### **What is my intention? What do I want to achieve?**

I wanted students to do as I had been trying to do - not answer each others questions but instead guide them through self questions to solve problems themselves. i.e. have them help each other to become better learners

### **What happened?**

In nearly all cases they then find their way forward, the only time it doesn't really work is when you need to show them correct setting out of answers. I had to reinforce the use of the bookmark questions with each other and referred to them every lesson (easier for them, just like it is for me, to show them the answer).

### **What now?**

The use of self questions (questions that good learners tend to automatically ask themselves) as a method of teaching maths is worth developing in an ongoing way. It takes times to build a change in their learner behaviour - I am going to pursue this.